RUST GEOTECH INC.

Spectral Gamma-Ray Borehole
Log Data Report

Borehole # 41-08-06

Log Event A

Borehole Information

Farm : SX	**Tank :** SX-108	**Site Number :** 299-W23-99
N-Coord : 35,300	**W-Coord :** 75,767	**TOC Elevation :** 662.13
Water Level, ft :	**Date Drilled :** 3/12/1962	

Casing Record

Type : Steel-welded	**Thickness :** 0.280	**ID, in. :** 6
Top Depth, ft. : 0	**Bottom Depth, ft. :** 135	

Equipment Information

Logging System : 1	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 03/1995	**Calibration Reference :** GJPO-HAN-1	

Logging Information

Log Run Number : 1	**Log Run Date :** 6/13/1995	**Logging Engineer:** Bob Spatz
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 22.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 2	**Log Run Date :** 6/13/1995	**Logging Engineer:** Bob Spatz
Start Depth, ft.: 21.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 113.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 3	**Log Run Date :** 6/15/1995	**Logging Engineer:** Bob Spatz
Start Depth, ft.: 133.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 112.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

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Analysis Information

Analyst : D.C. Stromswold

Data Processing Reference : Data Analysis Manual Ver. 1 Analysis Date : 8/11/1995

Analysis Notes :

This borehole was logged in three runs. The pre- and post-survey field verification spectra showed consistent activities, indicating the logging system operated properly during the logging event. Energy calibrations differed because of gain drift in the instrumentation. Gain drifts during data collection necessitated multiple energy versus channel number recalibrations during processing of the data to maintain proper peak identification. Depth overlaps from separate log runs occurred at 21 to 22 ft and at 112 to 113.5 ft. Data collected at these depths indicated the repeatability was reasonably good, although the reported concentrations for same-depth measurements were not always within the range of the respective uncertainties.

The casing thickness was 5/16 (0.3125) inches. The correction factor for 0.33 in.-thick steel casing was applied during data reduction, which results in an almost negligible over-estimation of the radionuclide concentrations. No other corrections, such as for water, were made to the log data.

The total gamma-ray log shows a high count rate at a depth of 21 ft. Spectra collected at this depth indicated elevated counts in the low-energy continuum. The elevated continuum could be caused by bremsstrahlung radiation, which is the result of a high-energy beta emitter such as Sr-90. Additional information and interpretations of log data for this borehole are included in the main body of the Tank Summary Data Report for tank SX-108.

Log Plot Notes:

Three log plots are provided. The Cs-137 concentrations are provided in a separate log plot to document the relative concentrations and shape of the distribution. A plot of naturally occurring radionuclides (K-40, U-238, and Th-232) is also provided, which can be used for lithology interpretation. A combination plot includes logs of Cs-137, natural gamma, total gamma derived from the spectral data, and the latest available data from the WHC Tank Farms gross gamma logging. The energy peaks from which the radionuclide concentrations were derived are included in the headings for the Cs-137 and natural gamma plots.

A log scale was selected for Cs-137 to emphasize the peak intensities. The natural gamma logs, total gamma logs, and the gross gamma logs are plotted on a linear scale.

The statistical uncertainty in a measurement is represented by uncertainty bars on the log plots where appropriate. This uncertainty is reported at the 95-percent confidence interval. The minimum detectable activity (MDA) is represented as an open circle on the plots. The MDA of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible. If the reported concentration is slightly above the MDA, the 95-percent confidence interval may extend below the MDA value and detection is not assured with 95-percent certainty.

The Tank Farms gross gamma plot is the latest available from WHC. With the exception of scale changes, no attempt has been made to adjust for depth discrepancies or other potential problems.